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FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

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CONTAGIOUS DISEASE.

Two-thirds of the year is now over, and we can form some idea of what our returns of scheduled disease are likely to be at the end of it. Tuberculosis has been scheduled for less than eighteen months; and any criticism of our progress against it would still be rather premature. As regards the other diseases, we cannot call our figures very encouraging. Some progress has been made against parasitic mange, a good deal against glanders, and so far our visitations of foot-and-mouth disease have been neither many nor severe. But all the other scheduled diseases now with us have gone up more or less. Sheep scab shows a a slight but distinct increase, for which, in view of its steady and substantial decline during recent years, it is not easy to account. Anthrax, which was showing a considerable decline last year, has shot up again to something not very far from the figures of 1912 and 1911. Swine fever has gone up by over 1000 outbreaks, and still remains the most serious problem confronting the Board of Agriculture. Every year proves the truth of that old saying of Sir George Brown—that nothing short of cattle plague regulations would stamp it ont.

Just now we are making better headway against glanders than any other disease; but we shall soon have a set back. The war will have serious effects upon animal disease in Europe, and recrudescence of glanders will be one of them—wars have always disseminated glanders. Most European countries are much less seriously affected now than they were a few years ago; but the work of a campaign will transform many latent cases into acute infective ones. Glanders is very prevalent in Russia; and Russian horses spreading over so great an area as now seems probable are certain to cause a very wide infection, despite all care and modern methods of diagnosis.

THE COLLEGES; THE ARMY SERVICE.

No intimation has appeared of alteration of date of re-opening our Colleges; we therefore conclude that the usual course will be adhered to. At no time in our history has it been so essential that men holding our diploma should be fully trained, and, what is equally desirable, that, as far as possible, inefficients should be weeded out.

Several of our correspondents are feeling sore that their offers of service in the A.V.S. have not been immediately accepted, but with the exception of a notice referring to the London district, we have seen no intimation of shortage. A comparison of the list given in the Register 1914, pp. 413-16, with that of 1899, pp. 349-50, shows what a reserve of men already trained they have to draw upon before coming to the private practitioner.

RECENT CONCEPTIONS OF CONTAGIOUS PNEUMONIA OF THE HORSE—the work of Prof. GAFFKY; By PAUL HAAN, director of the Remount Depot, Eragny.

M. Haan refers to the numberless attempts which have been made to establish the pathology of this disease, and notes that Prof. Gaffky and his collaborators have been working on this problem for more than eight years, and have presented entirely fresh conclusions, which, if they are verified, will tend to the upsetting of veterinary pathology.

In an enumeration of the many directions in which Gaffky worked on the problem, the follow-experiments are mentioned. Two colts which had not suffered a previous attack were placed in a stable previously occupied by infected animals—without disinfection. Further, manure from infected animals was spread in the stable. No infection followed. The ingestion of food soiled with fæces or with epithelial scales from several infected horses; the application of rugs and harness from infected subjects; of hair shaved from, and even of skin stripped from an affected horse killed and placed still warm, hair to hair on a healthy subject, alike failed to convey the infection. Close cohabitation with animals badly infected resulted in a rise in temperature, but only after 39 days: these recently infected horses were killed without any treatment at the 60th hour after the first symptoms, but without finding the least clinical sign of pulmonary infection. Nevertheless, commencing lesions of pleuro-pneumonia, and inflammatory lesions slightly in relief on the mucous membrane of the small intestine were found: but these did not allow a decision which set of organs was first attacked. Contagion does not spread constantly to the next animal. Other experiments have established that contagion does not persist in a place occupied by the infected, but always the disease was transmitted if the infected place was occupied by the healthy an hour after the others had been removed. Hence it is fair inference that if the agent of contagion exists outwith the organism, its virulence is of short duration.

Portions of organs from animals in full course of the disease triturated and given with food; hypodermic and intravenous injections of the blood; intra-pulmonary injection of fresh lesions, finely triturated, from all stages in the evolution of the disease; the transference of nasal mucous membrane with a sound, and similarly of fæces and urine, were all ineffectual. Inoculation of the usual laboratory animals; experiments with the pasteurelloses: numerous very minute experiments with biting insects, were all equally unsuccessful.

Gaffky had remarked that in horses slaughtered at the third or fourth day of infection a yellow, viscous, glassy exudate occurred, which may be expressed from the fine bronchii with forceps. Doubtless this exudate is expelled in coughing, but escapes notice from being swallowed by the animal. At the third or fourth day it is always virulent and contagious, and experimental infection is effected with certainty when it is introduced to the respiratory passages of a healthy horse: in the digestive tract enclosed in gelatine capsules, it is without effect. From this positive experiment on transmission of the pasteurella, it was but a step to search for the micro-organism in the epithelial cells removed *en masse* with the exudate. Experimental transmission resulted in the immense majority of cases from the injection of epithelium from horses killed at the third or fourth day of the disease; but later, contaminated with secondary infections, it loses its virulence; also the gelatinous exudate previously mentioned loses at the same time its physical characters.

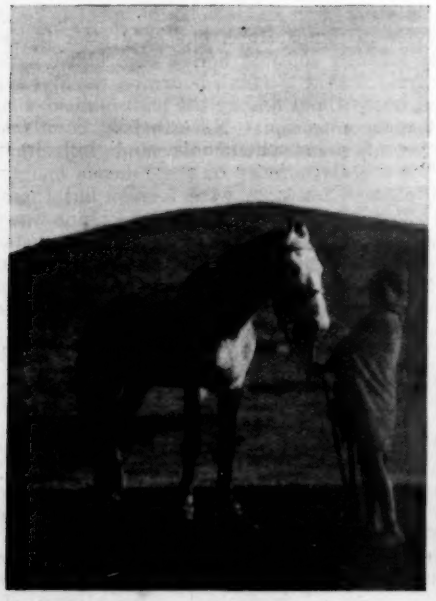
It is thus established that at this time—the fourth or fifth day—the streptococci appear which give rise to the inflammatory, hæmorrhagic or necrotic lesions; but the seat of origin of the true lesion is in the fine bronchioles and is characterised by secretion of the gelatinous exudate.

Experimental infection has permitted the determination of the period of incubation. Other experimenters had placed the appearance of symptoms about the 39th day of cohabitation. Koch had stated it as 32 days, and Lühr, from a very typical observation had placed it from 34 to 36 days. Gaffky has rigorously confirmed the figures: the minimum observed by him by his method has been 16 days, but more often it oscillates between 20 and 40 days.

A microscopic examination of the epithelial cells examined on the third or fourth day of the malady, taken immediately after slaughter, frequently shows cellular inclusions which Gaffky does not consider to be endocellular parasites, but rather as processes of degeneration. Moreover, he has been able to demonstrate these same alterations in healthy horses.

But Gaffky has found—not in the epithelial cells, but in the round mononuclear cells which constitute the viscous exudate—characteristic corpuscles which strongly resemble endocellular parasites, and bacteriologists and histologists who have examined Gaffky's preparations are of the same opinion. These corpuscles are found almost always to the number of six in a cell; they stain a light blue with Giemsa, and permit the differentiation of red particles which may be nuclei or centrosomes. Gaffky insists that these corpuscles are specific of the pasteurellosis, and that they are not found in healthy horses, or in those affected with other diseases. Culture of these parasites has not yet been achieved, but that need not imply a doubt as to their existence.

Finally—the most important if it be confirmed, and a fact that Gaffky gives only with all reserve—Injection either hypodermically or intravenously of pathological products triturated in



I forward the enclosed photographs of one of the departmental horses stationed in this town (for use by our veterinary officers) showing the extraordinary attitude commonly adopted by this animal when at rest. This peculiarity has been noticed for some years, and the animal is apparently quite sound.

Umtata. July 30. R. PAINE, F.R.C.V.S,

glycerine appears to confer a very strong immunity—really active, antitoxic.

The discovery of these pathogenic parasites is going to turn the pathology of the equine pasteurelloses towards a new conception: thus, after having been attached to the group of hæmorrhagic septicæmias, with which Gaffky had been engaged in his earlier studies since 1881; after being turned in the direction of the pasteurelloses, then attributed to different micro-organisms, contagious pleuro-pneumonia of the horse is now put on the list of undetermined parasites.—*Revue Générale de Médecine Vétérinaire.*

W. H. B.

THE DETECTION OF TRYPANOSOMES IN ANIMALS.

A. Lundie (*Journal of Trop. Med. and Hygiene*) describes the following method, which he has found to yield good results where plenty of blood is available.

Tubes containing 5 grammes of potassium citrate dissolved in 5 c.c. of sterile water are prepared and sterilised. The blood is allowed to run direct into the tubes, which are then set aside in the vertical position. Within half an hour there is always a little clear liquid at the top, and if trypanosomes are present in the blood at all, they will be found there.

The method is said to yield a larger number of positive results than any of the other methods known to the author.

Another advantage claimed for the method is, that it can be used for the study of trypanosomes. The tubes are left until the corpuscles have settled (three days) and the clear liquid is pipetted into a fresh sterile tube. The author has frequently obtained crithidial forms in this way.

It is also said that the life history of trypanosomes in tsetse flies can be studied by imitating the conditions present in the stomach of the fly. This is done by adding hydrochloric acid to make 0·2 per cent. strength. The effect is to convert the blood into a brown jelly. "The addition of a digestive ferment would no doubt complete the culture medium quite successfully. The matter of temperature is simple, as the fly cannot possibly incubate its undigested blood at a temperature higher than that of the air. Experiments in this direction promise a certain amount of success and are certainly different from what have hitherto been in vogue."—(*Tropical Veterinary Bulletin.*)

REFLEXIS GRAVIDI UTERI AD SINISTRUM.

G. Lichtenstern, of Rotthalmünster, records the following case of a condition which has not, to his knowledge, been reported in our literature. The subject was a valuable brood mare, eleven years old, at her fourth parturition. The author saw her in dystokia.

The left fore limb of the foal was in the pelvis, and could be felt as far as the sternum. The head could be felt *through the wall of the vagina* situated *on the left side of the vagina*, and from its position forming a hemispherical swelling on the left of the vagina and pressing the vagina to the right. The author diagnosed a reflexion of the uterus to the left.

The animal was laid down, and the hindquarters were raised about a metre (=a little over three feet) above the fore. The author then succeeded, although slowly, in manipulating the head of the foal towards the abdomen, and rectifying the uterine displacement so far as to enable him to secure the foal's head and direct it aright. The right fore limb, which had been lying in a bent position in the reflected portion of the uterus, could then be easily secured. The delivery of a living foal followed; and, though its extraction was accompanied by an eversion of the mare's bladder, this was easily reduced afterwards. During the birth the author administered 0·4 gramme (= about 6 grains) of morphia to the mother, and followed this up by another dose of 0·1 gramme (= about 1½ grains) after delivery. After delivery he removed the after-birth, and in the succeeding days he had the womb syringed with sublimate solution. The foal lived and is doing well.—(*Münch. Tier. Woch.*)

W. R. C.

[I am not aware that this condition has ever been recorded before in veterinary literature. —*Transl.*

REPORT OF THE GOVERNMENT VETERINARY SURGEON, CEYLON, FOR 1912-13.

STAFF.

Assistant Veterinary Surgeon.—Mr. E. T. Hoole, G.B.V.C. *Head Clerk.*—Mr. P. Samaranayake. *Assist. Clerk.*—Mr. V. Ganapathipillai. *Laboratory Assistant*—Mr. Edmund Duffey: with 17 *Stock Inspectors.*

During the first eleven months of the period under review I was away from the Island on leave. Mr. E. T. Hoole acted as Government Veterinary Surgeon, and Muhandiram J. A. G. Rodrigo acted as Superintendent of the Government Dairy.

Mr. G. B. de Silva returned from the Bombay Veterinary College in January, 1913, having passed the final examination and been granted the diploma of that College. Mr. M. D. S. A. Wijayanayake, Senior Stock Inspector, proceeded to Bombay on January 2, 1913, in succession to Mr. G. B. de Silva. Mr. M. C. S. Mohamed, Stock Inspector, left the Department on Dec. 1, 1913, to join the Police Department as a Sub-Inspector of Police. Mr. V. Ganapathipillai, clerk, passed the Government clerical examination in August, 1913, and was appointed clerk in the Government Analyst's Office from January 11, 1914. Mr. B. P. Edward de Silva succeeded him from Dec. 1, 1913.

[It will be seen that the report covers the period from July, 1912, to December, 1913].

INFECTIOUS DISEASES.

Rinderpest. During the year July, 1912, to June, 1913, rinderpest occurred in all Provinces. It decreased considerably during the half-year July-December, 1913, and at the close of the year all Provinces were free except the North-Western.

During the year July, 1912, to June, 1913, 216 cases of rinderpest occurred in the town of Colombo, of which 142 died. During the half-year ended Dec. 31, 1913, there were 21 cases, of which 20 died.

Foot-and-mouth disease. During the period under review this disease occurred in all Provinces except the North-Western. In Colombo town there were 452 cases with 2 deaths during the period July, 1912, to June,

1913, and 38 cases with no deaths during the half-year ended Dec. 31, 1913.

Surra. This disease broke out amongst cattle at Talawakele in October, 1913. Cases of the disease occurred amongst Indian cart cattle on Oct. 15, at first reported to be rinderpest. I visited Talawakele on Oct. 19. On the morning of the 20th, while watching cattle passing up and down the road, I observed a bull (one of a pair yoked to a cart) stop and appear to be very giddy and unable to move on. The carter unloosed him from the yoke and attempted to take him into a "gala" close by, when he reeled and fell over apparently in a convulsive fit. Temp. 102·4. He had three convulsive fits and died in less than one hour. Examination of his blood revealed heavy infection with trypanosomes. Biting flies (*Stomoxys calcitrans*) were abundant, causing great worry to the cattle. Measures were adopted to have sheds cleaned up and refuse burned, and the district was declared infected. Inspectors were stationed to examine cattle and send blood smears from any animals showing fever. Only three further cases were detected and put into a segregation camp. Restrictions were not removed until Feb., 1914.

A bull found infected on Oct. 25th was placed under experimental treatment, apparently with successful results. Oct. 26th to Nov. 4th, he was given 10 doses sodium arseniate, 9 grains daily in a pint of water; Nov. 7th to 17th, 10 doses sodium arseniate, 1 gramme daily in a pint of water.

Dec. 1st, rabbit inoculated; Dec. 10th, trypanosomes present in rabbit's blood.

Dec. 14th, 1913, to Jan 8th, 1914, 20 doses sodium arseniate, 1 gramme daily in a pint of water.

Jan. 20, 1914, puppy inoculated with 3 c.c. of blood from jugular vein of bull, with negative results up to date of writing (Feb. 28th, 1914). No cases were detected amongst horses.

Strangles. During the latter part of Oct., 1913, a virulent form of strangles broke out amongst coach horses at Pelmadulla on the Rakwana-Ratnapura road, aggravated by exposure and hardship during the heavy floods. There were 18 cases, of which 10 died, 1 recovered, and 7 were shot.

Return of Contagious Diseases, July, 1912, to June, 1913.

	Cases.	Deaths.
Rinderpest	6535	3287
Hoof-and-mouth disease	5977	311
Anthrax in the Provinces	2	2
Anthrax in Colombo Town	1	1
Hæmorrhagic septicæmia	4	4

July to December, 1913.

Rinderpest	1094	544
Hoof-and-mouth disease	1511	7
Surra	4	2
Anthrax in Colombo Town	2	2
Hæmorrhagic septicæmia	24	21
Strangles	18	16 1 shot

The total number of cattle for the whole Island for 1912-13 is 1,565,785, and the number of deaths from all diseases 18,330, giving a percentage of 1·17.

The total number of cattle for the whole Island for the half-year ended December 31st, 1912, is 1,528,974, and the number of deaths from all diseases 14,117, giving a percentage of ·923.

Inoculation with Anti-Rinderpest Serum.

1912-1913	Inoculated.	Became ill within a month	Recovered.	Died.
July to June	488	68	24	44
July, '13 to Dec. '13	290	14	2	12

Return of Horses, Cattle, Sheeep, and Goats Imported.

	Horses.	Cattle.	Sheep.	Goats.
July, 1912, to June, 1913	366	21,648	17,415	108,706
Half-year to Dec. 31, „	56	10,807	13,829	67,705

Quarantine.

The Municipal Veterinary Surgeon kindly furnishes the following information:—

Statement showing the number of cattle admitted during July, 1912, to June, 1913, and July to Dec. 1913.

Colombo Quarantine Station.	1912-13	To Dec. 1913
Cattle from India	16,270	7,073
Buffaloes	2,945	1,646
Sheep and goats	127,661	70,296

Number of Animals passed for Export to Ceylon:—

Tuticorin Quarantine Station.	1912-13	To Dec. 1913
Bulls	11,490	4,476
Cows	3,997	2,055
Calves	377	207
Buffaloes	2,908	1,635
„ calves	922	502
Sheep	15,819	11,330
Goats	109,560	59,425

The Veterinary Officer in charge of the Quarantine Station at Tuticorin states that there were no outbreaks of disease, excepting foot-and-mouth disease, amongst the animals passed through the depot. No inoculations were carried out for rinderpest.

The work of the depot is carried on under great inconvenience for want of proper accommodation, which will continue until the proposed buildings are put up.

I may remark that the question of the quarantine station buildings has been in abeyance pending decision as regards conveyance of cattle by the Indo-Ceylon railway.

It has been decided that cattle are to continue to come by the sea route and not by the railway; therefore the proposals regarding accommodation may again be considered.

Kayts Quarantine Station.

The following are the figures as regards the landing of cattle, sheep, and goats at Kayts:—

Cattle.	Sheep or goats.	Foot-and-mouth disease.
July, 1912, to June, 1913: 470 bulls, 9 cows	1	97 cases—all recovered.
Last half-year of 1913: 446 bulls	—	78 cases—all recovered.

Rabies.

July, 1912, to Dec., 1913	No. of cases examined.	No. positive
From 17 districts	35	11

The number of patients sent to Coonoor for treatment was 75.

The Director of the Bacteriological Institute, Colombo, and the Director of the Pasteur Institute, Coonoor, kindly furnished the above information,

Miscellaneous.

The horses of His Excellency the Governor's Escort, the Police horses, the draught bulls of the Public Works Department, Convict Establishment, and Botanic Gardens, and Government Dairy cattle have been attended as required.

Horses for insurance under the Volunteer Horse Insurance scheme have been inspected when required.

Biting Flies.—Kindly identified by the Government Entomologist:—

Hambantota, Oct., 1913: *Hæmatopota* sp. (?) and *Chrysops dispar*.

Talawakele, Oct, 1913: *Stomoxys calcitrans*, in connection with the Surra outbreak amongst cattle.

Parasites.—Amongst the Government dairy cattle very great loss is caused by *Hæmonchus contortus*, Rud. (*Strongylus contortus*). They abstract blood from the mucous membrane and produce anæmia, emaciation, and diarrhœa. Affected animals show periodical dropsical swelling about the throat and dewlap: they waste away until they become too weak to rise, and die from exhaustion. The administration of worm medicines in large doses has little or no effect. Both calves and adult cattle are affected.

Onchocerca Gibsoni.—This parasite about which Dr. Georgina Sweet, D.SC., of the Melbourne University, made inquiries in Ceylon during October, 1913, occurs in the flesh of Ceylon buffaloes, one in 250 carcases, and mostly in old animals. It forms "worm nests" occurring as firm fibrous nodules, found superficially in the flesh of the brisket. They do not appear to affect the animal's health, and are only found after slaughter. They cause loss to the meat trade by the rejection of affected carcases.

GOVERNMENT DAIRY, MODEL FARM, AND BRANCH FARM AT AMBEPUSSA.

Management. During the period the dairy continued under the management of Muhandiram J. A. G. Rodrigo.

Disease amongst Stock.—Loss from disease has been very heavy during the period, two outbreaks of rinderpest being experienced. From July, 1912, to June, 1913, 27 cows and 30 calves died, and between July and December, 1913, 11 cows and 16 calves, making a total of 37 cows and 46 calves during the eighteen months.

Purchase of Stock.—To keep up the supply of milk, expenditure under this head has been heavy, as will be seen in the statement of receipts and expenditure. (Rs. 5890).

Working of the Dairy.—Contrary to previous reports, the expenditure has considerably exceeded the receipts during the period under review. This is accounted for by the loss of stock, expenditure on purchase of stock already referred to, but principally to the very great rise in cost of cattle foods and the low price at which the dairy supplies milk to the hospitals.

The cost of cattle foods under contracts, July 1, 1912, to June 30, 1915, show a rise in price which causes expenditure under cattle foods to increase by over Rs. 500 a month.

Price of Milk.—Taking Nov., 1913, an average month, 9,231 quarts 39 oz. of milk was supplied from the dairy. Of this, 7216 quarts 22 oz. was supplied to the Colombo hospitals at 30 cents per quart, much below the prices paid to contractors at outstation hospitals, which are, for example, per quart, Anuradhapura 40 cents, Badulla 40 cents, Kegalla 52 cents, Ratnapura 50 cents, Nawalapitiya 46 cents, Lunugala 60 cents, Kandy 40 cents, Nuwara Eliya 36 cents, Galle 40 cents, Hambantota 50 cents, Matara 60 cents, Batticaloa 40 cents, Kurunegala 50 cents, Nikaweratiya 44 cents.

Had the quantity supplied to the Colombo institutions been charged for at 40 cents per quart, it would amount to an increase of Rs. 721·70 on the month's income.

Branch Farm, Ambepussa.—Progress in opening this farm has been slow.

Buildings.—At the close of the period under review these were almost completed, but had not been handed over by the Public Works Department.

Assistant Manager.—Mr. D. H. Senanayake was appointed Assistant Manager from Aug. 1st, 1913, on six months' probation, and with a staff of coolies went on with clearing work.

Stock.—In order to make a start, ten heifers were sent from the Government dairy in November, 1913. There being no pasture at present the cost of feeding is high.

The Model Farm.—This continues under the management of Mr. P. Samaranayaka. A statement of receipts and expenditure is annexed.

Statement. Government Farm.

Receipts.

		Rs.	c.
July, 1912—June, 1913			
Sale of milk, etc.	...	32,258	08
Sale of stock, Oct., 1912	...	1,900	98
Expenditure over receipts	...	8,481	43
		42,640	49
July, 1913—Dec., 1913.			
Sale of milk, etc.	...	16,130	59
Sale of stock, Sept., 1913	...	2,298	29
Expenditure over receipts	...	2,469	44
		20,898	32
		42,640	49
		63,538	81

Expenditure.

			Rs.	c.
July 1, 1912—Dec. 31, 1913				
Rent of racecourse			1,080	00
Pay of dairy and grass land coolies			7,788	00
Cattle Food	...	...	38,119	38
Stock purchased		...	12,588	50
Incidental expenses		...	1,322	93
Pay of the Manager		...	2,640	00
			63,538	81

Receipts. Model Farm.

			Rs.	c.
July, 1912, to June 1913			1472	50
July to December, 1913			826	25
Expendtture	...	...	871	83
	Balance	...	600	67
			1472	50
Expenditure	...	...	431	42½
	Balance	...	394	82½
			826	25

G. W. STURGESS, M.R.C.V.S., G.V.S.

Colombo, Feb. 28, 1914.

FILTERABLE VIRUSES.*

Report by Professor K. F. MEYER, Department of Pathology and Bacteriology, University of California.

[ABSTRACT].

The study of filterable viruses is attended with considerable technical difficulties, and the experimental results obtained depend largely on the ingenuity of the experimenter. Inasmuch as the process of filtration has been used as a means of classification, general uniformity in the methods applied should be attempted, if in any way possible.

Roux, Remlinger, Borrel, Marchoux, Schmidt, Rosenthal and others have shown that the process of filtration depends on various physical conditions of the filter candles or their diatomatous earthen substitutes. The

* Presented at the Tenth International Veterinary Congress, London, 1914.

rules which have been suggested by Marchoux for the process of filtration in establishing the filterability of a disease-producing organism have uniformly been adhered to in recent investigations.

For some filterable viruses comparative investigations should undoubtedly be undertaken, and the original experiments on which our classification was based should be repeated from a modern standpoint. This is particularly true in the case of cattle plague, Aujeszky's disease, lyssa, etc. For the first-named disease, a remark by C. T. Martin (London), made at the last Medical Congress in London, is at hand, in which he refers to some experiments of Todd which showed that the virus of cattle plague was not filterable. Bertarelli and Melli found, in supporting the findings of Zwick, that the micro-organisms of pseudolyssa were not present in the filtrates. For the virus of rabies the different views as to the filterability are expressed in the works of Remlinger, Di Vestea, Poor and Steinhardt; Marie, Bertarelli and Volpino, Celli and du Blasi. The first-mentioned writers obtained positive results regularly; the last three failed to pass the virus through Chamberland candles or even through Berkefeld candles. These facts show clearly how varying the results can be when using different materials for filtration. Poor and Steinhardt obtained 100 per cent. virulent filtrates with the Berkefeld filters, and 75 per cent. with the Chamberland F. filter when using gland virus (submaxillary glands were placed in distilled water and the virus aspirated by suction). These results suggest that the virus was in a freer condition in the glands than in the fixed brain virus used by Di Vestea, who obtained only 25 per cent. of positive results with a Chamberland filter. It is absolutely necessary in all filtration experiments that the time, the pressure, the temperature, the dilutions of the filtrates, and the type of candle be carefully recorded.

The most careful investigations of Borrel, Rosenthal and Doerr on the various filter candles have clearly shown that the width of the pores and the brands of the various firms are frequently far from being accurate, and that a careful standardization of any candle used for exact comparative work is a requisite. By following the suggestion of Doerr in working absolutely quantitatively with the virus to be filtered, as well as with the filtrate, I have also found that the Chamberland candle F. frequently permitted more virus to pass than the Chamberland candle B. under the same experimental conditions. Several attempts to use the various methods of Bechhold, Marchoux and Rosenthal in standardizing the filters have given very unreliable data, but I hope to take up the question again with the filter plates prepared by Rosenthal's method, which permits far more accurate graduation of the width of the pores.

The dilution of the virus to be filtered is absolutely necessary, and many failures have been observed by the author in his studies with pleuro-pneumonia and hog cholera. When working with mixtures of the virus—which are rich with albumin—according to works of Bechhold, Rosenthal and others, absorption of the proteins, peptones, etc., always takes place in the filter pores, and, finally, the filtration is passed through a colloid filter, which frequently prevents the passage of the disease-producing virus. In our experience a dilution of 2 : 100 or 1 : 100-150, with saline, is the proper concentration for the virus to be filtered when a serum virus is used. It is advisable—particularly when the virus has been obtained from tissues—to begin the actual experiment by coarse filtration through filter paper, or better, through sand or loose asbestos filters. Very flocculent, pleural exudates from cases of pleuro-pneumonia should always be prepared for filtration in this manner.

In 1908 Giemsa and Prowazek and Beaurepaire Aragao reported the use of so-called colloid filters for the study of filterable viruses. Bechhold, in describing his methods of ultra-filtration, suggested its possible use for the study of filterable viruses. In some very interesting experiments, Prowazek and Beaurepaire Aragao demonstrated by means of a simple technique, in which the second filter consisted in a 3 per cent. agar colloid membrane, that the virus of variola could be concentrated in pure form. The upper layers of the agar contained the specific, coccus-like bodies; the filtrate, a so-called "ultra-filtrate," did not contain these elements, and yet was virulent in tests on rabbits.

We have carried out numerous ultra-filtration experiments with the hog cholera virus, and found that it will pass through a 1 per cent. agar colloid layer in very small amounts, not at all through a 2 per cent., and never through a 3 per cent. agar, or through a celloidin or collodion membrane. Similar experiments by the writer, using Bechhold's ultra-filter, also proved the statements of v. Betegh that the hog cholera virus will not pass through a 4 per cent. acetic acid collodion filter. I agree with Doerr that the ultra-filters of Bechhold will not bring much more information on the nature of filterable viruses. The method of v. Prowazek is very simple, and will undoubtedly prove to be of great value for the comparative studies of which a few examples have been cited.

The conception of an "invisible or ultra-microscopical" virus has been entirely abandoned, since Bordet, Dujardin-Beaumetz, Borrel, v. Prowazek, Paschen, and others have explained that some of the filter passers at least can be demonstrated microscopically. The filterability of most of the viruses is sufficient evidence for concluding that all filterable viruses are corpuscular, inasmuch as they are retained by the finer Kitasate filters, through which colloidal particles freely pass. Some of the supposed filterable viruses can be seen in specially fixed and stained preparations, either in the form of so-called "cell inclusions" or "elementary bodies."

Cell inclusions have been known since 1892 through the work of Guarnieri, who called attention to peculiar bodies in the protoplasma of epithelial cells in vaccinia. The Negri bodies in lyssa, the Benda bodies in epithelioma contagiosum, the Schiffmann's corpuscles in fowl plague, etc., all belong in the class of *cellular changes* which, according to the views of our best protozoologists (Borrel, v. Prowazek, Hartmann, etc.) represent the products of reactions of the cells towards the invading parasitic virus.

These cell inclusions are characteristic for the particular virus by which they are caused, and are particularly found with regularity in the proliferating ectodermal cells of "distinctly dermotropic" diseases (Lipschutz), and are, therefore, of diagnostic importance in vaccinia, epithelioma contagiosum, and other diseases. But also in neurotropic diseases the degenerated cells derived from the ectoderm show similar bodies; we may mention here rabies and fowl pest only. Quite recently Uhlenhuth and Boeing have reported the existence of cell inclusions in hog cholera in the conjunctival epithelium, and Kuhn in African horse-sickness in the renal epithelium; these are the first findings of inclusions in acute septicæmic diseases caused by filterable viruses. The inclusions are most readily seen in proper preparations in the cytoplasma of the cells, compressing the nucleus very distinctly; in epithelioma contagiosum, for example, their structure is a very complicated one, and therefore the views concerning these bodies are very numerous.

The author has seen only twice, in scrapings from the conjunctiva of hogs suffering from hog cholera, the above-mentioned "trachoma-like" bodies of Uhlen-

huth, stained after Giemsa; large, blue-violet bodies of oval shape, surrounding the nucleus, consisting of blue plastin-like substance, contained numerous granules which stained a deep purplish-red. The number of hogs systematically examined has been very small, and therefore one cannot express a conclusive opinion. In numerous sections of kidney tissues from spontaneous and experimental African horse-sickness cases I have failed to find the inclusions described by Kuhn.

The demonstration of the Negri bodies has been used by the author for many years for the diagnosis of rabies, and their constant presence in hydrophobia was tested in at least 1500 examinations of various nervous tissues. They are specific for the disease. The difference in size and distribution are most striking. In cattle the Negri bodies are very large and numerous in the hippocampus; in the horse they are very small and usually in very confined areas; in cats they are mostly found in the Purkinje cells of the cerebellum. Luzzani-Negri has shown that the failures to demonstrate Negri bodies in cases of rabies do not exceed 4 to 5 per cent. (4·07 per cent. in 4961 carefully tested cases).

The fact that Rous and Murphy and Henke and Schwarz have shown that typical malignant tumours can be transplanted by filtrates of the tumour mass to the respective hosts opens a new era in the study of tumours. What importance this work may have on the pathology, and particularly on the Chlamydozoa theory, cannot as yet be decided. In any case the work of Borrel, Farmer, Moore, and Walker and others show connecting links between tumours and infectious diseases. Perhaps further investigations will show that the tumour described by Rous is not a true neoplasma, but a granuloma; the intermediate stage between classic bacterial granulomata and so-called true tumours may have been found. Naturally, the chicken tumours thus far studied would, in many respects, be more closely related to the neoplasmas than the granulomatas.

As soon as the views concerning the corpuscular character of filterable viruses had gained sufficient ground, experiments were undertaken to concentrate the various organisms by centrifugalising. These experiments have been successful only in rabies, fowl plague, and vaccinia virus. Chauveau and v. Prowazek found that the vaccinia virus, after prolonged standing, sediments to such an extent that the upper layers of the fluid bulk were inactive. Remlinger, by centrifugalising, filtered rabbit-brain emulsion in distilled water, and found that the supernatant clear fluid was inactive. Similar experiments by Landsteiner and Russ demonstrated that the virus of fowl pest was concentrated with the sedimented red blood cells when infectious blood was centrifugalised—they could not decide whether the virus was only attached to the blood cells or whether it was intracorpuscular. Sieber, in experimenting with the virus of African horse-sickness, could not concentrate the virus by centrifugalising; the same results were obtained by Uhlenhuth and his collaborators when working with hog cholera virus (blood and urine).

Quite recently Dinwiddie concludes from some experiments in centrifugalising citrated hog cholera blood that the virus of this disease can be sedimented. These assertions stimulated further investigations. K. F. Meyer reported in 1912 that he had found that the red blood cells retain the virus of hog cholera even after twelve careful washings with saline solution; he pointed out at that time the deficiency of Dinwiddie's technique, as in all of his experiments the last wash-water produced the disease, and no quantitative, comparative tests with the filtrate and filtrans* were carried out.

In the experiments conducted by the author on the experimental Farm of the Pennsylvania State Live-stock Sanitary Board, it was clearly shown that the virus will become "sedimented" with the blood cells by centrifugalising, and that it is not removed by washing. However, it is not simply a process of sedimentation, as the supernatant fluid contains the virus as well, even when collected with the greatest precautions. Prolonged centrifugalising of plasma absolutely free from hæmoglobin does not show any sedimentation. In continuation of these experiments, which were several times repeated, it was further noted that the hog cholera virus will attach itself to any blood cells (normal hog, rabbit, sheep) in such a manner that repeated washings will not remove it, the last wash-water being, in all of these experiments, either free or partially free from virus. The first requisite is hardly possible to obtain, as, on foreign blood cells particularly, the virus seems to attach itself not as solidly as on hog cells.

Sieber reported that the virus of the African horse-sickness, after ten washings, was present with the blood cells. Landsteiner found that the virus of fowl pest is fixed to such an extent to the fowl and rabbit blood cells that the serum could be deprived of the micro-organism by centrifugalising. These observations point to the existence of a common cause for both viruses, namely, a physico-chemical process. Without going into details, the assertion is made that the corresponding lipoid substances of the protoplasma of the parasite and of the membrane of the blood cells melt together, causing the inseparability of the virus from the blood cells observed in the experiments. Similar conditions are met with in protozoan diseases; for example, in East Coast fever the parasite is attached to the blood cells in the same way as the lime particles to the oil globules of a lime oil suspension. The relation of the observations of Theiler and Baldrey on rinderpest virus to the above-mentioned experiments is not known. It is a fact that with clear serum one is incapable of producing the disease, the virus being suspected of location in the red blood cells.

Kolle and Turner have already disproved, experimentally, the supposition that the cattle plague virus is in the blood cells, by demonstrating that even hæmolysed blood fails to pass through filters, the virus being also unfilterable under these conditions. The recent works of Nicolle and Adil Bey, Ruediger, and others have shown that only the virulent peritoneal transudate, obtained by injecting saline solution in the abdominal cavity of sick cattle, will give a virulent filtrate. The absorption experiments of Kraus, v. Eisler and Fukuhara can probably be explained in a similar manner. These experiments are of considerable importance in the concentration of filterable viruses, and have been successful only for rabies, fowl plague, and vaccinia. All attempts of Uhlenhuth and his collaborators to cause absorption by kaolin, charcoal or oil have failed. (*To be concluded*).

* "Filtrans" = virus to be filtered.

From *Le Temps*, Paris, Aug. 16. "We found on the field of battle the medicine chest of a vet., who jotted down his impressions from minute to minute. When he was killed he was writing:—"I see the shells bursting with a white smoke in the sky, which is lighted up from the south; luckily my helmet protects me from sunstroke." Evidently he was on an excursion, this veterinary surgeon, and was counting on coming to Paris, and had taken the most minute precautions of hygiene and of elegance. He was provided with scent and eau de Cologne. He had even brought with him a rose ointment for the nails, and a superb gilt shoulder-belt which was to raise his prestige for when he passed under the Arc de Triomphe. The battery to which he belonged is annihilated now."

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period.	Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks (a)	Animals.	Outbreaks (a	Animals.	Outbreaks (b)	Animals.	Outbreaks (b)	Animals.	(b)	Outbreaks (a)	Slaughtered. *
GT. BRITAIN. Week ended Aug. 29	6	9	3	14	3	3	8	8	1	52	180
Corresponding week in 1913 ...	8	9			3	3	18	29		44	505
Corresponding week in 1912 ...	12	13			3	4	12	20	3	30	522
Corresponding week in 1911 ...	22	24			5	7			1	31	541
Total for 35 weeks, 1914	518	564	14	88	74	179	1538	2673	153	2821	28939
Corresponding period in 1913 ...	381	420			115	231	1912	3855	129	1716	23112
Corresponding period in 1912 ...	566	643	70	442	123	232	2348	5094	173	2218	28901
Corresponding period in 1911 ...	584	731	8	425	132	312			307	1768	20798

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked: Middlesex 1, Oxford 1, Stafford 1.

Board of Agriculture and Fisheries, Sept. 1, 1914

IRELAND. Week ended Aug. 29	...	...	...	...	...	...	Outbreaks 3	5	5	52
Corresponding Week in 1913 ...	...	...	...	...	...	...	2	8	2	15
Corresponding Week in 1912 ...	...	...	3	20	...	...	...	...	5	28
Corresponding Week in 1911 ...	...	2	...	...	...	...	1	...	1	4
Total for 35 weeks, 1914 ...	1	1	76	955	...	...	62	390	158	814
Corresponding period in 1913 ...	...	...	...	...	...	...	98	374	112	675
Corresponding period in 1912 ...	3	3	24	236	...	...	52	262	177	1482
Corresponding period in 1911 ...	7	14	...	...	2	3	50	253	92	1579

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Aug. 31, 1914

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

The Select Committee on Patent Medicines.

Last week we were able to note that the report of this Committee has been issued, and to direct attention to an important recommendation: this week we give a fairly full summary of the report. There are many considerations which inevitably make the report of far more value to the medical man than to the veterinarian, but the work of the Committee is instructive in several directions, and their findings are reasoned and moderate.

During the three sessions over which their labours extended, the Committee examined forty-two witnesses, of whom more than 14,000 questions were asked. From the mass of evidence thus accumulated, they arrived at the following findings:—

That there is a large and increasing sale in this country of patent and proprietary remedies and appliances and of medicated wines.

That these remedies are of a widely differing character, comprising (*a*) genuine scientific preparations; (*b*) unobjectionable remedies for simple ailments; and (*c*) many secret remedies making grossly exaggerated claims of efficacy; causing injury by leading sick persons to delay in securing medical treatment; containing in disguise large proportions of alcohol; sold for improper purposes; professing to cure diseases incurable by medication; or essentially and deliberately fraudulent.

That this last-mentioned class of remedies contains none which spring from therapeutical or medical knowledge, but that they are put upon the market by ignorant persons, and in many cases by cunning swindlers who exploit for their own profit the apparently invincible credulity of the public.

That in British Dominions and foreign countries severe legal restrictions exist, and that there is a tendency still further to strengthen the law against these articles.

That no Department of State and no public officer is charged with the duty of controlling the sale and advertisement of proprietary remedies in this country; that the Home Office and the Local Government Board are virtually powerless in this respect; that the Privy Council Office, though supposed to be specially concerned with the sale of drugs, has no initiative in the matter, and in fact, it fulfils no useful function in this connection.

That the existing law is chaotic and has proved inoperative, and that successful prosecution for fraud in the advertisement and sale of secret remedies is fraught with the greatest difficulty, though the public Prosecutor has perhaps not sufficiently tested the powers of the existing law in respect to such cases.

That consequently the traffic in secret remedies, except as regards scheduled poisons and the grosser forms of impropriety, is practically uncontrolled in this country.

That new legislation to deal with it, rather than merely the amendment of existing laws, is urgently needed in the public interest.

And that while it is not desirable to require the exhibition of formula of every secret remedy, it is improper that under the protection of the law enormous quantities of alleged remedies should be sold, the composition of which is unknown to any person except the manufacturers of them; and that therefore the formulæ of all secret remedies should be required to be communicated to a competent officer appointed under the

authority of a Minister of State, but that such formulæ should not be divulged to any other person except as hereinafter recommended.

PUBLIC CONTROL.

To meet these conditions the Committee submit numerous recommendations, which may be summarised as follows :—

That the administration of the law governing the advertisement and sale of patent, secret, and proprietary medicines and appliances be co-ordinated and combined under the authority of one department of State.

That this administration be part of the functions of the Ministry of Public Health, when created, and that in the meanwhile it be undertaken by the Local Government Board.

That a competent officer be appointed to this department, with the duty of advising the Minister regarding the enforcement of the law

That there be established at the department concerned a register of manufacturers, proprietors, and importers of patent, secret, and proprietary remedies, and that every such person be required to apply for a certificate of registration, and to furnish (*a*) the principal address of the responsible manufacturer or representative in this country. and (*b*) a list of the medicine or medicines proposed to be made or imported.

That an exact and complete statement of the ingredients and the proportions of the same of every remedy; of the contents, other than wine, and the alcoholic strength of every medicated wine, and a full statement of the therapeutic claims made or to be made ; and a specimen of every appliance for the cure of ailments other than recognised surgical appliances be furnished to this department, such information not to be disclosed except as hereinafter recommended, the department to control such statement, at their discretion, by analyses made confidentially by the Government chemist.

That a special court of commission be constituted with power to permit or to prohibit in the public interest, or on the ground of non-compliance with the law, the sale and advertisement of any remedy or appliance, and that the commission be a judicial authority such as a metropolitan police magistrate sitting with two assessors, one appointed by the Department and the other by some such body as the London Chamber of Commerce.

That the Minister concerned have power to institute the necessary proceedings to enforce compliance with the law.

That a registration number be assigned to every remedy permitted to be sold, and that every bottle or package of it be required to bear the imprint "R.N. . . . ." (with the number), and that no other words referring to the registration be permitted.

That in the case of a remedy the sale of which is prohibited, the proprietor or manufacturer be entitled to appeal to the High Court against the prohibition.

That the Department be empowered to require the name and proportion of any poisonous or potent drug forming an ingredient of any remedy to be exhibited upon the label.

That inspectors be placed at the disposal of the department to examine advertisements and observe the sale of proprietary remedies and appliances.

That an annual fee be payable in respect of every registration number issued.

It is recommended that the Stamp Acts should be consolidated and amended to remove the numerous existing anomalies and unreasonable exceptions, and that the Indecent Advertisements Act should be amended on the lines of Lord Braye's Bill.

As regards new legislation, the Committee propose that every medicated wine, and every proprietary remedy containing more alcohol than that required for pharmacological purposes should be required to state upon the label the proportion of alcohol contained in it ; that it be a breach of the law to change the composition of a remedy without informing the department ; that fancy names for recognised drugs be subject to regulation ; and that the period of validity of a name used as a trade mark for a drug be limited.

They urge the prohibition of all advertisements of remedies for sexual diseases, and also those likely to suggest that a medine is an abortifacient. They would also prohibit the advertisement and sale (except the sale by a doctor's order) of medicines purporting to cure :—

Cancer, consumption, lupus, deafness, diabetes, paralysis, fits, epilepsy, locomotor ataxy, Bright's disease, rupture (without operation or appliance).

It should be a breach of the law to give a false trade description of any remedy, the following to be a definition of a false trade description : "A statement, design, or device regarding any article or preparation, or the drugs or ingredients or substances contained therein, or the curative or therapeutic effect thereof, which is false or misleading in any particular."

It should also, in the Committee's opinion, be a breach of the law :—

(*a*) To enclose with one remedy printed matter recommending another remedy ; (*b*) to invite sufferers from any ailment to correspond with the vendor of a remedy ; (*c*) to make use of the name of a fictitious person in connection with a remedy ; (*d*) to make use of the fictitious testimonials ; (*e*) to publish a recommendation of a secret remedy by a medical practitioner unless his or her full name, qualifications, and address be given : (*f*) to promise to return money paid if a cure is not effected.

THE PRESENT LAW.

Under the Stamp Act foreign medicines are liable to duty merely because they are foreign, but since 1885, when Mr. Childers was Chancellor of the Exchequer, the Commissioners of Inland Revenue have disregarded the difference between British and foreign preparations as a concession, according to one witness, to those who contended that the duty violated the doctrines of Free Trade. Again, any number of different names may be secured as trade marks for the same drug.

In all cases where the name of an ailment is mentioned in connection with a medicine, the Commissioners have since 1902 required duty to be paid ; where no ailment, but only the organ of the body which is the seat of the ailment, is mentioned, the medicine is not dutiable. Thus, "cough mixture" is dutiable, "chest mixture" is not : "headache powder" is dutiable, "head powder" is not. Millions of powders for headache now escape duty under this decision. An alleged cure for asthma only fails to escape duty because no organ of the body can be named as specially the seat of that ailment.

As to the extent of the trade in proprietary ramedies in this country, the Committee state that in 1913-14 the yield of the duties was, in respect of 43,156 licenses, £10,791, and in respect of duties upon medicines apart from licenses £360,376, an increase of £31,958 in twelve months, the greatest advance for many years. The number of medicine stamps issued in the year ending March 31, 1908, was 41,757,575 ; for the year ending March 31 last it was 44,427,166. On the assumption that all the 1½d. stamps were put upon medicines retailed at 1s. 1½d., the sales of these would reach about £1,930,000, and that all the 3d. stamps were put upon medicines retailed at 2s. 9d. the sales of

these would be about £1,275,000, or nearly £3,200,000 for these two classes alone.

It was strongly urged on the Committee chiefly by witnesses representing the medical profession that every remedy sold should by law be compelled to bear a label stating its exact composition, "We have given long and careful consideration to this proposal, and we find ourselves unable to recommend it. In the first place it would beyond question inflict a grave hardship, sometimes amounting to ruin, upon proprietors of secret remedies, or the loss of their investments upon shareholders in limited companies."

The Committee are convinced that the adoption of the proposal would not really protect the public against danger or fraud. To a large majority of purchasers a statement of composition or contents on the label would afford no information whatever. Further, an accurate statement of contents might be in itself misleading.

To Drench or not to Drench?—A Question of Evolution.

Mr. F. E. PLACE, B.V.SC., M.R.C.V.S., Veterinary Lecturer, writes as follows in the *Journal of Agriculture of S. Australia*:

"A sick horse and something to pour inside him—a combination of circumstances which seems to have exercised men's minds for thousands of years. Homer tells us that outside the walls of Troy the arrows of Apollo fell thick and fast on man and beast, so that thousands died of the plague; and an undiscovered manuscript is said to describe a scene where Achilles is in sad trouble over the sickness of his charger, and sends for Hipparchos, the priest and horse doctor, who comes and, with rich and varied ritual, prescribes and orders the administration of a drench for the suffering beast, which soon succumbs, as it cannot absorb through its lungs some quarts of burnt dog's liver suspended in thick Chian wine. Achilles seems to have his doubts as to the cause of death; which frame of mind Hipparchos deems most impious, and departs in dudgeon, warning the wrathful owner to sacrifice a cock to Aesculapius, and to be truly thankful for the skill bestowed on the operator, "For without my aid the horse might e'en have lived."

Some hundreds of years pass, and we are with Cæsar on the banks of the Rhone. The constant fording and refording have played havoc with the Roman cavalry; the horses cough and run at the nose, and die of "Morbus." So the great commander sends for Eques Veterinarius, who, with prompt skill, holds a sick horse parade, and declares, with many mystic terms, that each patent must be drenched with 2 quarts of juice made from pounded fox lung mixed with eagle's dung. The disease is so virulent that even while being drenched the horses fall and die. Cæsar was evidently much annoyed, for he writes of the "loss of horses under that —— E. V." But later, with the calmness of a great general, he admits that, but for the quickness of the deaths following the drenching, the fodder might have been consumed and his chance of successful retreat much lessened, and so recommends E.V. for promotion, on the ground that he has been of great service to the State.

The scene changes in the Holy Land: and on the shore at Joppa, sickness and death decimate the the chargers of Richard Cœur de Lion's knights; so Mareschal Knight, who is "cunning with horses and skilled withal," is consulted, specially with respect to the king's favorite Barbary charger. He prescribes large drenches of water from the Sea of Galilee, to fetch which would mean penetrating the Saracen lines. The king is not charmed with the prospect, and hints that the horses already drenched have died more quickly and certainly than those which have not had the benefit of the valiant Mareschal's drenches; and, when night calls for truce, Richard consults one of Saladin's Arab officers, but cannot translate the word "drench." However, a Paynim Hakeem is sent for, who laughs outright at the idea, and gives the Frank a sweet-smelling gum, to be burned under the horse's nostrils, and a smooth paste to be put upon his tongue. Some days later Richard plays polo on the Barb, and in the evening the Mareschal descants at mess on the wondrous healing power of the waters of Galilee when given as a drench in large quantities, a view that is strongly upheld by the king's chirurgeon and his reverence the chaplain.

A few more centuries pass, and the Merry Monarch hands out the tinkling silver bells to the winner on Newmarket Heath; for already dour King Jamie's imported Barbs and Place's White Turk have formed the strain that later produces St. Simon and Carbine. But "the distemper," a legacy of the late unhappy wars, is spread from inn stable to farm, from farm to grange, from grange to castle, and post horses stagger on the last stage to die; the plough lies idle under the hedge. Farrier Smith is therefore in great demand, for who so clever as he at giving a drench? And that's a thing no unlearned person should attempt, for pouring oil of vitriol or spirits of salts down a horse's nostril is no lay matter. And, reader, mark the advance—now there is no hit or miss, pouring into the lungs *via* the mouth; no, with skilled attention it goes direct from nose to lungs, and the distemper troubles them no more. But one day, in the parlor of the Jolly Huntsman, Tom Ashley, who combined the lucrative trades of tanner and knacker, twitted his cousin the farrier on the fact that since he had grown too fat to drench with ease and drank too much to afford to use potent drugs, horse hides had become quite scarce; whereupon, with a round oath, the farrier gave his professional opinion that infernal drenching had killed more incarnadined horses than ever the glanders had; and who shall say he was wrong?

Yet, in the year of grace, 1914, no sooner does the horse get the gripes than someone is sent galloping off for a drench, and probably for a drenching bit, for that will ensure the drench going down; yes, but where? Where the dogs's liver and Chian wine went, where the fox lung juice went, where Farrier Smith's concoctions went—down the windpipe into the lungs. Why? Because the horse's nose is above his mouth and his windpipe below his gullet, and when he drinks, his head is down, and his windpipe is protected by a trapdoor (the epiglottis), so that the liquid glides over it into the gullet down into the stomach. But when the patient sufferer falls into the hands of ministering angels with a drench, up goes his head, the muscles of his throat are stretched so that the trapdoor is forced open, and, being shaped like the lid of a jug, involuntarily catches the drench and tips it down the windpipe. And still the nose is used as a funnel, despite the fact that it is arranged to allow air, not liquid, to get into the windpipe; and if liquid is substituted for air, it too, has to go the wrong way after intensely irritating a very delicate organ; and when a horse coughs he is bound to take the drench down his windpipe. Nowadays the active principles of all useful drugs can be obtained in concentrated form, and, mixed with molasses or pollard, can be put on the tongue or teeth, or tastelessly mixed with the food or drink, or inhaled in vapour form without harm; and the chorus that comes down the ages in an equine Esperanto, "Killed by drenching," will, *diminuendo pianissimo*, be lost to the ear, while the cheerful whinny of the grateful and restored patient will take its place if the question in the headline is answered in the negative.

Foot-and-Mouth Disease in Lincolnshire.

The Board of Agriculture on Friday, 28th, notified the existence of foot-and-mouth disease amongst animals on a farm at Stallingborough, near Grimsby.

By Order No. 9,230 dated 1st inst., the farm buildings, yards, meadows, etc., at Dovecote Farm, Kirk Garth Farm, Ivy House Farm, Stallingborough, and part of Kirknington House Farm have all been scheduled as places infected with foot-and-mouth disease.

There were on the premises at Stallingborough, six cattle and five pigs affected with the disease. The stock on the premises consisted of nine milch cows, four calves, two rams, and fifteen pigs. The owner also had on marshes about one mile distant eleven cattle and one calf. There has been no movement of animals on to the farm since February last. One calf was sold off the farm two days ago, and two fat cattle were sent to Grimsby Market from these premises on the 17th. So far there was no clue to the origin of infection.

REVIEW.

MEAT AND FOOD INSPECTORS' EXAMINATIONS. Model Answers to Questions set by the Royal Sanitary Institute and other Examining Bodies. Compiled by G. T. Billing, Meat Inspector, Metropolitan Borough of Finsbury, and A. H. Walker, Sanitary Inspector, Metropolitan Borough of St. Pancras. Second Edition, pp. × ij + 180. (The Sanitary Publishing Co., Ltd., 55-56 Chancery Lane, W.C., 1914.

We fully reviewed this little book on its first appearance in 1911; and a notice of the second edition may almost be confined to pointing out the additions which have been made. In its early form, the book was a useful one of its class; and we may say at once that the not very numerous additions which have been made to it will all tend to increase its usefulness.

The work is really an examination guide to candidates for the Meat and Foot Inspectors' Examinations held by the Royal Sanitary Institute; and nearly the whole of its matter consists of model answers to questions which have actually been set at recent examinations. In the first edition there were 150 such questions; there are now 165, and the authors are justified in their claim that "the questions have been selected so as to cover the many and varied subjects in the syllabus." The only other addition calling for notice—a really useful one—is contained in the form of an appendix. The first four pages of this give the names and approximate weight of the various butchers' joints, and the names of the glands and bones in each joint; and this is followed by eight figures of carcases to illustrate different points. One error must be noted in connection with the latter. The first two figures are of sides of ox beef, the first one indicating the position of the chief lymphatic glands, and the second the London butchers' joints; and the titles of the two figures are transposed.

So long as it is employed as it is intended to be employed—as an examination guide—the work will continue to be of great utility to all candidates for the Meat and Food Inspectors' Examinations. Even the veterinary candidate for these examinations will find it well worth reading. It is true that, in many subjects comprised in the Meat and Food Inspectors' Examination, the veterinary surgeon is already far in advance of the examiners' requirements. But the examination deals also with many other subjects which have no place in the veterinary curriculum; and we know no book which gives so good an idea of its syllabus as this one.

W. R. C.

A Veterinary Mayor in France.

Several communes dispute the honour of possessing the senior of the Mayors in France, but it is difficult to think that this title can be contested for M. Figarol, Mayor of the little commune of Saint Frajou, Canton de l'Isle-en-Dodon (Haute Garonne).

M. Figarol was born on 18th November, 1827, and is thus in his 87th year. He has held the office of Mayor since 23rd Feb., 1855—more than 59 years, and this continuously. At the last elections he was elected municipal councillor by 108 votes, on a list of 108 voters—actually a unanimous vote—a curiosity in electoral life, and evidence of his popularity as Mayor.

M. Figarol enjoys excellent health; he is a fine old man, still very alert. He has been veterinarian longer than he has been Mayor, and continues to practise his profession; he is still an excellent horseman, mounts smartly and without help, and goes daily on his round of visits in the country.—*Excelsior*, Paris.

Board of Agriculture Scholarships.

The Board of Agriculture have awarded research scholarships in Agricultural and Veterinary Science of the annual value of £150, tenable for three years to the following candidates:—

* * *

Veterinary Science. R. DAUBNEY, M.R.C.V.S.; A. H. ADAMS, M.R.C.V.S.

National Relief Fund.

We have received for publication a circular from which we take the following extracts:—

TO THE CRICKET LOVING PUBLIC.

The Fund, which has been called into being by His Royal Highness to meet the countless cases of misery and hardship which must inevitably follow on the heels of war makes an instinctive and instantaneous appeal to the generosity of the public, and we, as cricketers, know that there is no public so sportsmanlike and so generous as the cricketing crowd.

It is this thought which has given rise to this particular appeal. We ask all those who have watched us play, and who have cheerfully paid their half-crowns, shillings, and sixpences as gate-money, to step forward and contribute over again their half-crowns, shillings, and sixpences to the Prince's Fund, out of gratitude for the enjoyment the cricket field has given them in the past.

Without any undue spirit of self-importance, we may perhaps say that we have contributed not a little to the interest the public takes in cricket, and therefore we make this personal appeal from ourselves to all those who love the game to send whatever they can spare to H.R.H. The Prince of Wales, Buckingham Palace, London, S.W.—Yours faithfully,

J. W. H. T. DOUGLAS	J. B. HOBBS
F. R. FOSTER	G. L. JESSOP
F. H. GILLINGHAM	W. RHODES
W. G. GRACE	R. H. SPOONER
HARRIS	P. F. WARNER
T. HAYWARD	F. E. WOOLLEY.
G. HIRST	

Messrs. Wyman and Sons (Limited) official sale agents in England and Wales for Parliamentary papers and Stationery Office publications, have published the following, post free:—Slaughter of Animals, Courts (Emergency Powers).

ARMY VETERINARY SERVICE

Extract from *London Gazette*,

WAR OFFICE, WHITEHALL, Aug. 28.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

Capt. R. Elliott to be Major. Dated July 1.
H. W. Southall to be Capt. Dated Aug. 29.
H. Sumner to be Lieut. Dated Aug. 29.
H. McD. Faul to be Lieut. Dated Aug. 29, Aug. 29.

REGULAR FORCES. ARMY VETERINARY CORPS.

The following to be temporary Lieut.:—
J. B. Cowx. Dated Aug. 5. E. Nicholson. Dated Aug. 6. R. T. Davis. Dated Aug. 7. F. K. Henton. Dated Aug. 11.

W. B. De Vine, to be temporary Lieut. (Aug. 28.)

Supplementary to Regular Units or Corps.

ARMY VETERINARY CORPS.

S. L. Slocock to be Lieut. Dated Aug. 14.
L. A. Auchterlonie to be Second Lieut. Dated Aug. 18.

OBITUARY

KENNETH HANNAN SOUTAR, M.R.C.V.S., Gloucester. Graduated, Lond: Dec., 1913.

Mr. Soutar died in London on Wednesday, 2nd Sept., at the early age of 25 years.

CORRESPONDENCE.

THE URGENT CALL FOR VETERINARY SURGEONS.

Sir,

I think the letters of "M.R.C.V.S." and "E" in last week's *Record* ought not to be passed without comment. They evidently don't think the students should be considered at all. If the D students, as mentioned by them, are capable of doing the work allotted to them by the two correspondents, viz., acting as locum for practitioners who been called up, why shouldn't they have their diplomas? They would be far more use in this respect if they were qualified.

Again, why should the students be prevented from qualifying by closing the Colleges, as they cannot get into A.V.C. until they are qualified. Leaving aside entirely the question of an emergency examination, I think it would be very hard lines on the D students if the Colleges were to close.—Yours faithfully,

"A CLASS D STUDENT."

Royal Vet Coll., London. N.W.
September 2.

Sir,

I offered my services to the War Office three weeks ago filling in the necessary papers, since then I have received no reply. Surely they cannot be in need of veterinary surgeons.—Yours, etc.,

"M.R.C.V.S." AGE 28."

Sir,

When I read through the letters in *The Record* and saw that there seemed to be an opinion by one or two that the veterinary surgeon was wanted very badly, I volunteered as one; got the necessary papers filled in and sent up. I then got a letter asking me to go up to London for a personal interview. Well, when I got that letter, I thought my chance had come to do a little. I went up after travelling over one hundred miles. I got to the office and had about 10 minutes of an interview, and at the finish I was told that all the vacancies were filled up, and that my name would be noted, and I would have to wait till someone fell out. After leaving the office the thought struck me, "Why there is no war." and I was disgusted with the whole business. After spending a day and my travelling expenses, and to be told that, when a letter and a penny stamp would have saved all that. I am now going to join as an ordinary trooper in the Yeomanry or the Regulars.

They have plenty of veterinary surgeons just now, so there doesn't seem any need to close down the colleges or have special exams, for the D men at once. If anyone wants to do his country any good, join as an ordinary trooper, and not blow about how the veterinary profession will be needed. For when all is said and done we only help nature. There may be some who are a little more skilled than others. But it is all a matter of which way the wheel may turn.—Yours truly,

COLLAPSED PEDESTAL.

Sir,

I have read letters in your journal dealing with the question of shortage of veterinary surgeons in this country at the present time as well as those letters expressing my opposite view. Without being egotistic I think I can claim to be one of the successful members of the profession in the midlands, and this is my experience. I was under an arrangement with the War Office to examine remounts in case of an outbreak of war. When the time unfortunately arrived my services were requested, and I undertook the work which only lasted a week. Since that time I have not been asked to undertake any work of this kind.

Am I to understand that no further services are required from me? My position is this, I am a married man with a family and I have a general practice. If I were to volunteer and be accepted for service abroad my practice would not be worth coming back to afterwards. Although forty years of age I feel as fit as ever to do a day's work and perhaps have a better practical knowledge of it than when I was twenty-five. Am I too old for this work? or is it that I have not the necessary influence at headquarters? —Yours, etc.,

PRACTITIONER.

[Is it not a fair inference that this work was required all over the kingdom at once, and at the shortest notice; and the first rush of mobilization being over, the ordinary machinery of the War Office is able to handle present requirements].

Sir,

I cordially agree with your correspondents "E." and "Under 45." I very much suspected that Mr. Trigger's letter and also Prof. Hobday's to a certain extent convey quite wrong impressions. The state of affairs appears to me to be that there is an excessive number of ordinary veterinary practitioners in the country, and that the shortage exists only in trained military men and in those at present willing to be a so-called assistant who is in reality the drudge of the greedy practitioner who is now feeling the breeze. The present day young veterinary surgeon wants something better than seven days hard drudgery a week for about £150 a year.

An analysis of your advertising columns gives me my basis as there are 8 *assistants* wanted, but only 4 *locums* wanted and only *one* of the latter is for a practitioner called up. There are also three men advertising as willing to accept a locum in addition to your correspondent "Retired M.R.C.V.S." So there are four men willing to accept the four locums.

Those wanting assistants will have to do their dirty work themselves and, I say, as a practitioner, a jolly good job too, as they will then perhaps think twice before cutting the fees of those who do all their own work.

E. O. PARSONS.

Ealing, W.